Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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<u>Ex parte</u> GANESH SUBRAMANIYAM and GARY HAMMOND

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Appeal No. 2005-0203
Application No. 09/669,034

MAILED

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PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

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ON BRIEF

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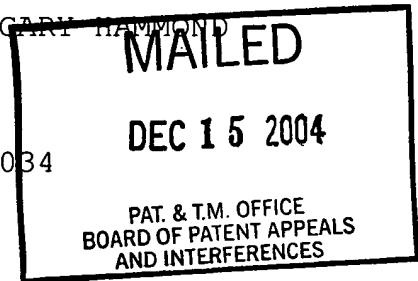
Before THOMAS, HAIRSTON, and NAPPI, <u>Administrative Patent Judges</u>.

HAIRSTON, <u>Administrative Patent Judge</u>.

<u>DECISION ON APPEAL</u>

This is an appeal from the final rejection of claims 1 through 24. In an Amendment After Final (paper number 8), claims 1, 8, 9, 20, 21 and 24 were amended.

The disclosed invention relates to a method and system for controlling the quantity of instructions per cycle executed by a central processing unit (CPU) based upon the temperature of the CPU.

Claim 1 is illustrative of the claimed invention, and it

reads as follows:

> 1.   A system comprising a central processing unit (CPU)
> including power management logic to enable the CPU to
> execute a first quantity of instructions per cycle whenever
> the temperature of the CPU exceeds a predetermined threshold
> and to execute a second quantity of instructions per cycle
> whenever the temperature of the CPU is below the
> predetermined threshold.

The references relied on by the examiner are:

McFarland	5,125,093	Jun. 23, 1992
Hetherington et al. (Hetherington)	5,978,864	Nov. 2, 1999
Shiell et al. (Shiell)	6,138,232	Oct. 24, 2000
		(filed Dec. 19, 1997)

Claims 1 through 3 and 8 through 24 stand rejected under

35 U.S.C. § 103(a) as being unpatentable over Hetherington in

view of Shiell.

Claims 4 through 7 stand rejected under 35 U.S.C. § 103(a)

as being unpatentable over Hetherington in view of Shiell and

McFarland.

Reference is made to the brief and the answer for the

respective positions of the appellants and the examiner.

<div align="center">OPINION</div>

We have carefully considered the entire record before us,

and we will sustain the 35 U.S.C. § 103(a) rejections of claims

1 through 24.

We agree with the examiner's findings (answer, pages 2 and

3) that "Hetherington et al. disclose a method and system

comprising a CPU 200, wherein the CPU includes power management

logic 220 that enables the CPU to operate in a first execution

mode (reduced at step 506) whenever the temperature of the CPU

exceeds the predetermined threshold (threshold at step 502) (see

col. 13, lines 44-55) and operates in a second execution mode

(normal at step 510) whenever the temperature of the CPU is below

the predetermined threshold (threshold at step 508) (see figures

2 and 5, col. 14, lines 5-32)."

Appellants argue (brief, pages 8 through 10) that

Hetherington reduces the clock rate, as opposed to instructions

per cycle, when the temperature of the processor exceeds a

thermal threshold, and increases the clock rate, as opposed to

instructions per cycle, when the temperature of the processor

falls below the noted thermal threshold. Hetherington discloses

(Figure 2; column 5, lines 20 through 31) that the clock circuit

222 that provides a clocking signal to the processor is operative

to "reduce a frequency of the clocking signal to a reduced

frequency" when the thermal threshold of the processor is

exceeded, and is operative to "increase the frequency of the

clock signal back towards a nominal frequency" when the thermal

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threshold of the processor falls below a certain level.

Hetherington specifically states (column 6, lines 17 through 20)

that "[t]he particular examples represent implementations useful

in high clock frequency operation and processors that issue and

executing [sic, execute] multiple instructions per cycle

('IPC')." In other words, Hetherington teaches that instructions

per cycle are indeed controlled by the frequency/rate of the

clocking signal.

In sustaining a multiple reference rejection under 35 U.S.C.

§ 103(a), the Board may rely on one reference alone without

designating it as a new ground of rejection. In re Bush, 296

F.2d 491, 496, 131 USPQ 263, 266-67 (CCPA 1961); In re Boyer, 363

F.2d 455, 458 n.2, 150 USPQ 441, 444 n.2 (CCPA 1966). Thus, the

obviousness rejection of claim 1 is sustained based upon the

teachings of Hetherington and the cumulative teachings of Shiell.

The obviousness rejection of claims 2 through 24 is likewise

sustained because appellants have chosen to let these claims

stand or fall with claim 1 (brief, page 6).

DECISION

The decision of the examiner rejecting claims 1 through 24 under 35 U.S.C. § 103(a) is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED
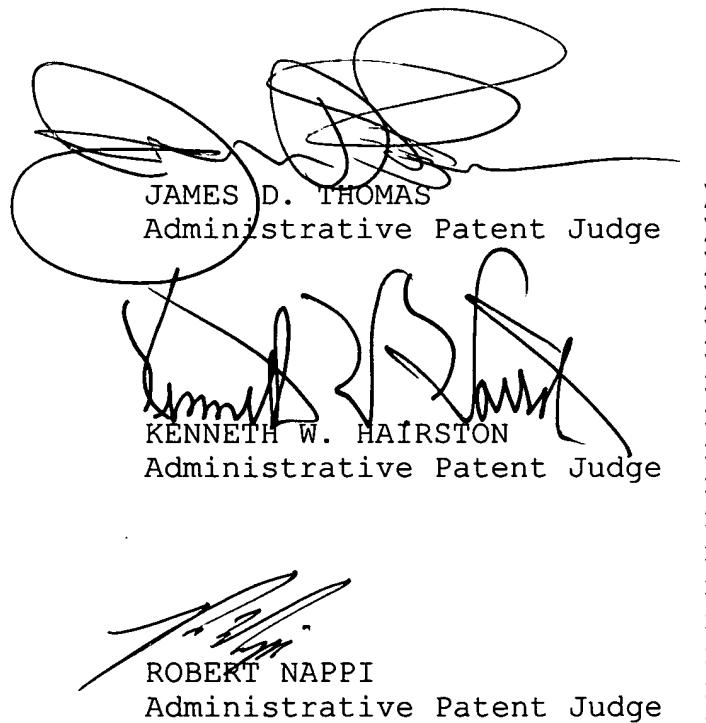
JAMES D. THOMAS   )
Administrative Patent Judge   )
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